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Jawaharlal Nehru

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IS 10026-3-7 (1983): Insulating varnishes containing solvents, Part 3: Specifications for individual materials, Section 7: Baking varnishes with temperature index 180 [ETD 2: Solid Electrical Insulating Materials and Insulation Systems]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS : 10026 (Part 3/Sec 7) - 1983
(Superseding IS : 350 - 1968)
(Reaffirmed 1996)

Indian Standard
SPECIFICATION FOR
INSULATING VARNISHES CONTAINING
SOLVENTS

PART 3 SPECIFICATIONS FOR INDIVIDUAL MATERIALS

Section 7 Baking Varnishes with Temperature Index 180

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Indian Standard

SPECIFICATION FOR INSULATING VARNISHES CONTAINING SOLVENTS

PART 3 SPECIFICATIONS FOR INDIVIDUAL MATERIALS

Section 7 Baking Varnishes with Temperature Index 180

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Indian Standard
SPECIFICATION FOR
INSULATING VARNISHES CONTAINING
SOLVENTS

PART 3 SPECIFICATIONS FOR INDIVIDUAL MATERIALS

Section 7 Baking Varnishes with Temperature Index 180

0. FOREWORD

0.1 This Indian Standard (Part 3 / Sec 7) was adopted by the Indian Standards Institution on 24 March 1983, after the draft finalized by the Solid Electrical Insulating Materials Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This standard deals with insulating varnishes containing solvents. It consists of the following three parts.

Part 1 Definitions and general requirements,

Part 2 Methods of tests, and

Part 3 Specifications for individual materials.

0.3 This standard (Part 3 / Sec 7) stipulates the requirements for baking varnishes with temperature index 180.

0.4 This standard should be read in conjunction with IS : 10026 (Part 1)-1981* and IS : 10026 (Part 2)-1982†.

0.5 This standard specifies optional requirements for density, flash point, dilution ability and reaction of varnish with copper, which shall be carried out if agreed to between the purchaser and the supplier and shall be within the limits when compared with declared values applying the tolerances given in Table 1.

0.6 This standard supersedes IS : 350-1968‡.

*Specification for insulating varnishes containing solvents: Part 1 Definitions and general requirements

†Specification for insulating varnishes containing solvents: Part 2 Methods of tests.

‡Specification for organic, baking, impregnating, insulating varnishes for electrical purposes (*first revision*).

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0.7 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard

1. SCOPE

1.1 This standard (Part 3 / Sec 7) covers the requirements for both impregnating and finishing insulating varnishes containing solvents, curing of which require the application of heat and which are of temperature index 180.

1.2 Impregnating varnishes are classified in two types, namely:

- a) flexible; and
- b) hard

2. REQUIREMENTS

2.1 All materials in a consignment shall comply with the requirements given in IS : 10026 (Part 1)-1981†, for colour, condition of supply, and shelf life.

3. PERFORMANCE REQUIREMENTS

3.1 When tested according to the relevant methods described in IS : 10026 (Part 2)-1982‡, the material shall conform to the requirements given in Table 1.

*Rules for rounding off numerical values (revised).

†Specification for insulating varnishes containing solvents: Part 1 Definitions and general requirements

‡Specification for insulating varnishes containing solvents: Part 2 Methods of tests.

TABLE 1 SCHEDULE OF CHARACTERISTICS
(Clauses 0.5 and 3.1)

Sl No (1)	PROPERTY (2)	TEST METHOD CLAUSE (3)	REQUIREMENT (4)	REMARK (5)
i)	Density*	3 of IS: 10026 (Part 2)-1982†	± 0.05 of the nominal value	Nominal value to be agreed upon between the purchaser and the supplier
ii)	Viscosity†	4 of IS: 10026 (Part 2)-1982†	± 15 percent of the nominal value	Nominal value to be agreed upon between the purchaser and the supplier
iii)	Non-volatile matter†	5 of IS: 10026 (Part 2)-1982†	± 2 percent of the nominal value	Nominal value to be agreed upon between the purchaser and the supplier
iv)	Drying in thin film	6 of IS: 10026 (Part 2)-1982†	Non tacky in not more than 4 hours 23°C	See Note 1
v)	Flash point, Min*	7 of IS: 10026 (Part 2)-1982†	100	—
vi)	Dilution ability or compatibility, percent, Min*	8 of IS: 10026 (Part 2)-1982†	Not worse than S. 1, U. 1, and 14.1 uniform	See Note 1
vii)	Ability to cure in considerable thickness†	9 of IS: 10026 (Part 2)-1982†	Not worse than W. 2	—
viii)	Check for resurfacing†	10 of IS: 10026 (Part 2)-1982†	The copper shall not change colour	—
ix)	Reaction of varnish with copper*	11 of IS: 10026 (Part 2)-1982†	Change in viscosity not more than 5 times the original value. No skin formation, precipitation or gelled lumps	—
x)	Stability of varnish in an open vessel†	12 of IS: 10026 (Part 2)-1982†	Pencil hardness not softer than H	Applicable for impregnating varnishes only
xi)	Effect of varnish on enamelled wire†	13 of IS: 10026 (Part 2)-1982†	Not detachable by normal value 4-5	Applicable for flexible varnishes only
xii)	Flammability test†	14 of IS: 10026 (Part 2)-1982†	No evidence of attack	See Note 1
xiii)	Adhesive strength, N/mm ² , Min	15 of IS: 10026 (Part 2)-1982†	0.04	—
xiv)	Resistance to transformer oil†	16 of IS: 10026 (Part 2)-1982†	0.10	—
xv)	Electric strength, kV/mm, Min	17 of IS: 10026 (Part 2)-1982†	No visible damage or detachment of the film on convex side, on bending over a mandrel of diameter 4-75 mm	For flexible varnishes only
xvi)	Resistance to tracking, Min	18 of IS: 10026 (Part 2)-1982†	50 drops	See Note 1
xvii)	Volume resistivity ohm/cm, Min	19 of IS: 10026 (Part 2)-1982†	1 × 10 ¹²	The type of chemical and its concentration to be agreed upon between the purchaser and the supplier
xviii)	Bond strength coefficient†	20 of IS: 10026 (Part 2)-1982†	1 × 10 ⁶	See Note 1
xix)	Dissipation factor and permittivity	21 of IS: 10026 (Part 2)-1982†	1.0 Max	After seven days of immersion in water
xx)	Thermal endurance	22 of IS: 10026 (Part 2)-1982†	Under consideration	For flexible insulating varnishes only
xxi)	Resistance to mould growth	Appendix G of IS 6127-1971§	Temperature index not less than 180	For hard varnishes only

NOTE 1 Temperature and the time for curing each coat is to be recommended by the supplier.
NOTE 2 Applicable for finishing varnishes specially designed for resistance to mould growth.
NOTE 3 Applicable for finishing varnishes specially designed for resistance to mould growth.
* Shall be carried out as routine test.
† Optional requirements, to be carried out if agreed to between the purchaser and the supplier.
‡ Specification for varnish, spar and fungicidal.

AMENDMENT NO. 1 JANUARY 1986

TO

IS:10026(Part 3/Sec 7)-1983 SPECIFICATION FOR
INSULATING VARNISHES CONTAINING SOLVENTS

PART 3 SPECIFICATIONS FOR INDIVIDUAL MATERIALS

Section 7 Baking Varnishes with
Temperature Index 180

[Page 5, Table 1, Sl No. (iii)] - Substitute the
following for the existing matter under respective
columns:

SL NO. (1)	PROPERTY (2)	TEST METHOD CLAUSE (3)	REQUIREMENT (4)	REMARK (5)
iii)	Non-vola- tile matter†	5 of IS:10026 (Part 2)- 1982†	±2 percent of the nomi- nal value	Nominal value to be agreed between the purchaser and the supplier and shall not be below 40 percent

(EFDC 63)

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